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## CLAIMS

1. In a mobile communications system comprising a network and at least one mobile station, a method for selecting a transport format combination TFC to be used for  
5 communication from the mobile station to the network, over a channel of variable quality, the method comprising the steps of:  
in the network,
  - a) defining a set of possible transport format combinations;
  - b) calculating a channel quality requirement for the effective use of each transport  
10 format combination;
  - c) indicating the transport format combinations and the channel quality requirements to the mobile station;
  - d) calculating an existing quality of the channel of variable quality; and
  - e) indicating the existing quality of the channel of variable quality to the mobile station;  
15 and, in the mobile station;
    - f) storing the transport format combinations and relative channel quality requirements;
    - g) receiving the indication of existing channel quality;
    - h) selecting one of the transport format combinations having a channel quality requirement no greater than the existing channel quality, and  
20 i) informing the network of the selected transport combination.
2. A method according to claim 1 wherein the step (h) of selecting one of the transport format combinations is performed with regard to the type of data to be transmitted by the  
25 mobile station.
3. A method according to claim 1 or claim 2, wherein the transport format combinations enable transmission of data blocks containing data from different TBFs in each block.
4. A method according to any preceding claim wherein calculation of the existing  
30 quality of the channel of variable quality is performed periodically during communication.

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5. A method according to any preceding claim, wherein the relative channel quality is calculated as the minimum channel quality required such that data sent on the channel is received with an error ratio below a defined threshold.
- 5 6. A method according to any preceding claim wherein the step (c) of indicating transport format combinations and channel quality requirements to the mobile station includes the steps of:
- (c1) ranking the transport format combinations according to the associated channel quality requirement; and
- 10 (c2) indicating the rank (TFCI) of each transport format combination to the mobile station, along with the transport format combinations themselves, to the mobile station.
7. A method according to claim 6, wherein the step (c2) of indicating the rank of each transport format combination comprises indicating the transport format combinations
- 15 themselves in order of increasing, or decreasing, rank.
8. A method according to claim 6 or claim 7 wherein the step of indicating the existing quality of the channel of variable quality comprises indicating the rank of the transport format combination having the highest channel quality requirement, which could effectively
- 20 be employed on the channel in its existing quality.
9. A method according to claim 8, wherein the rank is indicated as an absolute value.
10. A method according to claim 8 wherein the rank is indicated as a relative value, being
- 25 an offset relative to a previous value of the rank.
11. A method according to any preceding claim wherein the indication of the existing quality of the channel of variable quality is communicated to the mobile station by inband signalling, whereby the indication of the existing quality of the channel of variable quality is
- 30 included in every downlink radio packet, in data locations normally assigned for carrying user information.

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12. A method according to any preceding claim wherein the indication of the existing quality of the channel of variable quality is communicated to the mobile station by inband signalling, whereby the indication of the existing quality of the channel of variable quality is  
5 split into sections, respective sections being transmitted in respective successive downlink radio packets, in data locations normally assigned for carrying user information.
13. A method according to claim 12 wherein two, or six, or eight data bits of each radio packet are employed for communication of the indication of the existing quality of the  
10 channel of variable quality.
14. A method according to any of claims 1-11 wherein the indication of the existing quality of the channel of variable quality is communicated to the mobile station by inband signalling, whereby the indication of the existing quality of the channel of variable quality is  
15 split into sections, respective sections being transmitted in respective successive radio bursts.
15. A method according to claim 14 wherein two data bits of each burst are employed for communication of the indication of the existing quality of the channel of variable quality.
- 20 16. A method according to any preceding claim wherein the indication of the existing quality of the channel of variable quality is communicated to the mobile station using the slow associated control channel SACCH, whereby two bits of the SACCH header are employed to transmit the indication of existing quality of the channel of variable quality, over a corresponding number of SACCH messages.  
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17. A method according to any preceding claim wherein the indication of the existing quality of the channel of variable quality is communicated to the mobile station using a dedicated channel provided in parallel with the slow associated control channel with embedded enhanced power control SACCH/TP for signalling the indication of existing  
30 quality of the channel of variable quality.

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18. A method according to claim 17, wherein the signalling is performed over a number of SACCH/TP bursts, employing twelve bits per SACCH/TP burst.

19. A method according to claim 18, wherein the signalling recommences at every fourth  
5 SACCH/TP burst.

20. A method substantially as described and/or as illustrated in the accompanying drawings.

10 21. A communications system arranged to operate according to the method of any preceding claim.

22. A network arranged to operate within a communications system according to claim  
21.

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23. A mobile station arranged to operate within a communications system according to claim 21.